

PHOTOVOLTAIC DEVICES FABRICATED FROM NANOSTRUCTURED
TEMPLATE

ABSTRACT

Photovoltaic devices, such as solar cells, and methods for their manufacture are disclosed. A device may be characterized by an architecture having a nanostructured template made from an n-type first charge transfer material with template elements between about 1 nm and about 500 nm in diameter with about 10^{12} to 10^{16} elements /m². A p-type second charge-transfer material optionally coats the walls of the template elements leaving behind additional space. A p-type third charge-transfer material fills the additional space volumetrically interdigitating with the second charge transfer material.